

REMARKS

The Examiner is thanked for the examination of the application. In view of the remarks that follow, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

Claims 1-20 are pending.

Claims 1, 5, 6, 8, 12, 14 and 17-19 have been rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,754,684 to Kim. Claims 2 and 9 have been rejected under 35 U.S.C. §103(a) over Kim in view of U.S. Patent No. 6,504,949 to Matsukubo et al. Claims 3, 4, 7, 10, 11 and 13 have been rejected under 35 U.S.C. §103(a) over Kim in view of U.S. Patent No. 4,813,078 to Fujiwara. Claims 15 and 16 have been rejected under 35 U.S.C. §103(a) over Kim in view of U.S. Patent No. 5,341,227 to Kumashiro. These rejections are respectfully traversed.

Applicant's independent claim 1 is directed to an image processing apparatus. A halftone dot characteristic detecting section detects a halftone dot characteristic indicative of a halftone dot in image data. A first counter counts the number of halftone dot characteristics that exist in a first region including a target pixel from among halftone dot characteristics detected by the halftone dot characteristic detecting section. An edge pixel detecting section detects a pixel belonging to an edge region based on image data. A second counter counts the number of edge pixels that exist in a second region including the target pixel from among edge pixels detected by the edge pixel detecting section. The discriminator discriminates whether or not a region that includes the target pixel is a character region in a halftone dot image based on the count result of the first counter and the count result of the second counter.

Applicants respectfully disagree with the Examiner's assertion that Kim discloses a discriminator that discriminates whether or not a region that includes the target pixel is a character region in a halftone dot image based on the count result of the first counter and the count result of the second counter. Instead, Kim discloses discriminating a text area and a screen dot area from an image containing text mixed with a picture. That is, Kim discloses determining that an area is either a text area or a screen dot area, and not a text area within a screen dot area. As shown in Table 2 of column 6, the final discrimination result is a text area, a screen dot area or a non-screen dot area. See also Fig. 2 which shows a screen dot area detector 40 and a test area detector 30.

Independent claims 8 and 14 are allowable for at least the reasons discussed above with respect to independent claim 1.

The dependent claims are also allowable for at least the reasons discussed above as well as for the individual features they recite. For example, dependent claim 3 recites wherein the discriminator discriminates that a target pixel belongs to a character region in a halftone dot image in case that a count value of a first counter is smaller than a first threshold and account value of a second counter is greater than a second threshold.

The Office Action recognizes that Kim does not disclose a discriminator that discriminates a target pixel belonging to a character region in a halftone dot image in the case that the count value of the first counter is smaller than a first threshold and account value of the second counter is greater than the second threshold. The Office Action asserts that Fujiwara overcomes these deficiencies of Kim. However, Fujiwara discloses a counter for counting the number of binary dot characteristics

that exist in a region. Kim discloses counting peak pixels. It is difficult to see how the Examiner proposes to replace the peak pixel counter in Kim with the counter of Fujiwara for counting the number of binary dot characteristics that exist in the region nor is it clear how any thresholds disclosed in Fujiwara relate to Kim. Simply substituting the thresholds as suggested by the Examiner in the Office Action would lead to an apparatus that does not include the features of Applicant's claimed invention nor would it perform the function and method steps. In Fujiwara, the first threshold relates to the number of picture elements that trigger a recognition of a part of a character corresponding to the particular sub-region. The second threshold relates to the number of continuous boundary points which indicate a direction which relates to the recognition of a part of the character corresponding to the particular sub-region. It is unclear how substituting these results relate to either Kim or Applicant's claimed invention.

Applicant's new claim 20 is directed to an image processing apparatus. A halftone dot characteristic detecting section detects isolation points as a halftone dot characteristic indicative of a halftone dot in image data. A first counter counts the number of isolation points that exist in a first region including a target pixel from among isolation points detected by the halftone dot characteristic detecting section. An edge pixel detecting section detects a pixel belonging to an edge region based on image data. A second counter counts the number of edge pixels that exist in a second region including the target pixel from among edge pixels detected by the edge pixel detecting section. A discriminator discriminates whether or not a region that includes the target pixel is character region in a halftone dot image based on the count result of the first counter and the count result of the second counter.

As described in the Applicant's as-filed specification at paragraph [0070], the halftone dot region is characterized in that a large number of halftone dot characteristics exist but a small number of edges exist. In new claim 20, a first counter counts the number of isolation points that exist in a first region including a target pixel from among isolation points detected by the halftone dot characteristic detecting section. As an example, the number of isolation points that exist in a predetermined region are counted and the isolation point count value is compared to a reference value.

In contrast, as disclosed in Kim, a peak pixel detector detects a pixel which is the largest or smallest in comparison with peripheral pixels. Although a peak pixel may be an isolation point, the first counter in claim 20 counts the number of isolation points. A counter that counts the number of peak pixels would not be the same as a counter that counts the number of isolation points. For example, a counter that counts the largest pixels is not counting the smallest pixels.

For the reasons stated above, it is requested that this application be allowed.

In the event that there are any questions concerning this response, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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